THE EARTH ANGULAR MOMEMTUM BUDGET ON SUBSEASONAL TIME SCALES: EXCHANGE AMONG THE EARTH, ATMOSPHERE AND OCEAN SUBSYSTEMS

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Changes in Earth orientation are caused by the mass displacement of the solid Earth and by exchanges of angular momentum between the solid and fluid parts of the Earth, as well as with extraterrestrial objects. Length-of-Day variations over timescales of days to interannual periods are dominated by atmospheric excitation, with a robust seasonal cycle arising from annual harmonics of solar radiative forcing. Significant variability appears at shorter periods in the intraseasonal band, and has been linked to episodes of the tropical Madden-Julian oscillation as well as to extratropical, dynamically-induced flow anomalies. Findings from a joint analysis of Earth rotation, atmospheric angular momentum from the NCEP reanalysis, and ocean angular momentum from several models will be featured.

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